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COMPUTER SCIENCE

NEWSLETTER

No. 90

Edited by C. Alan Ford

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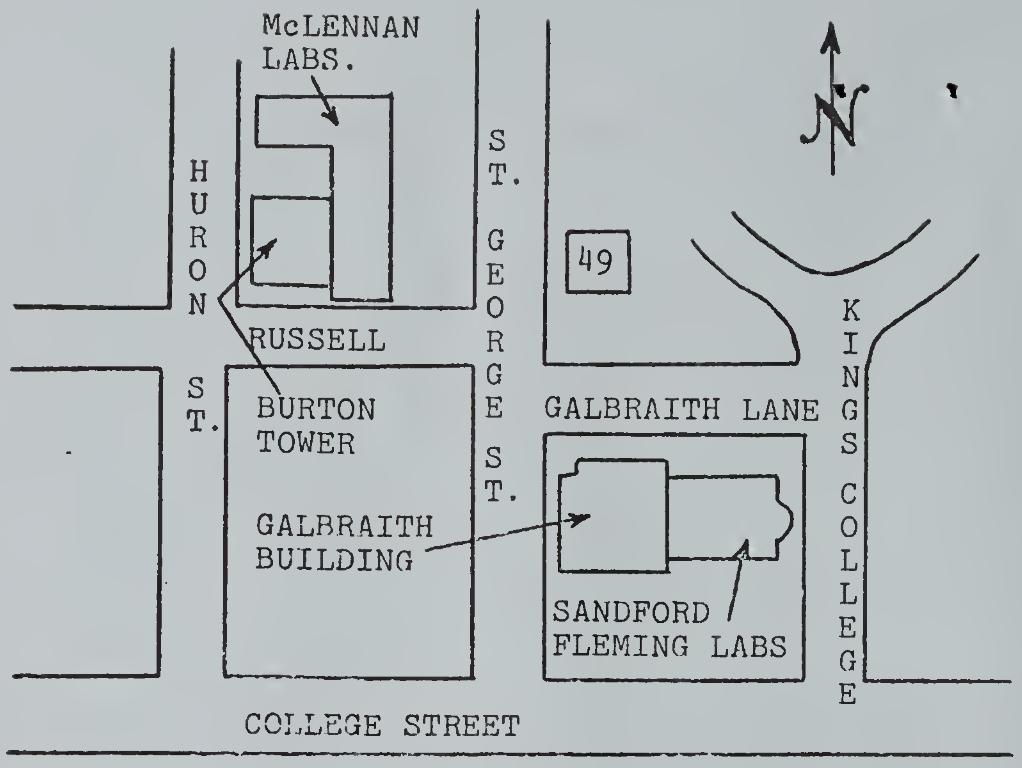
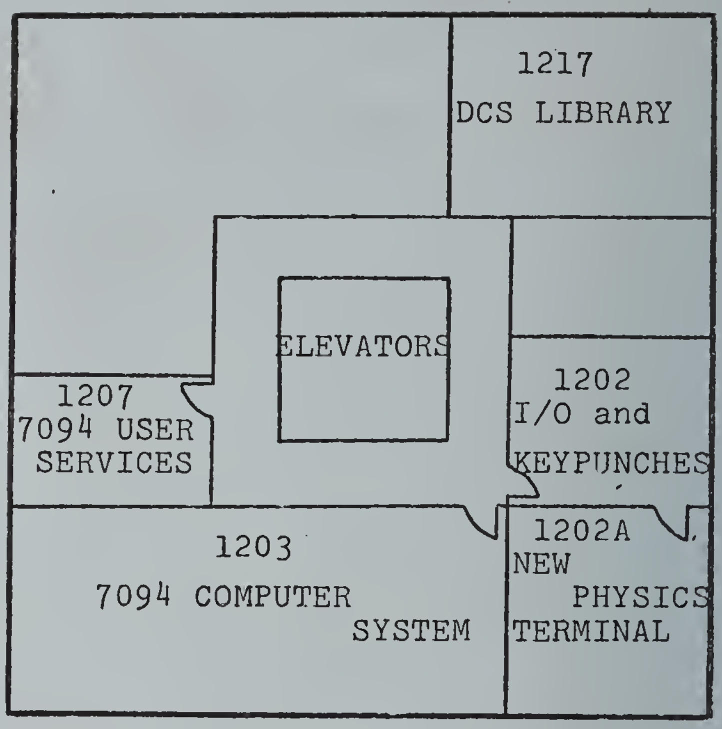
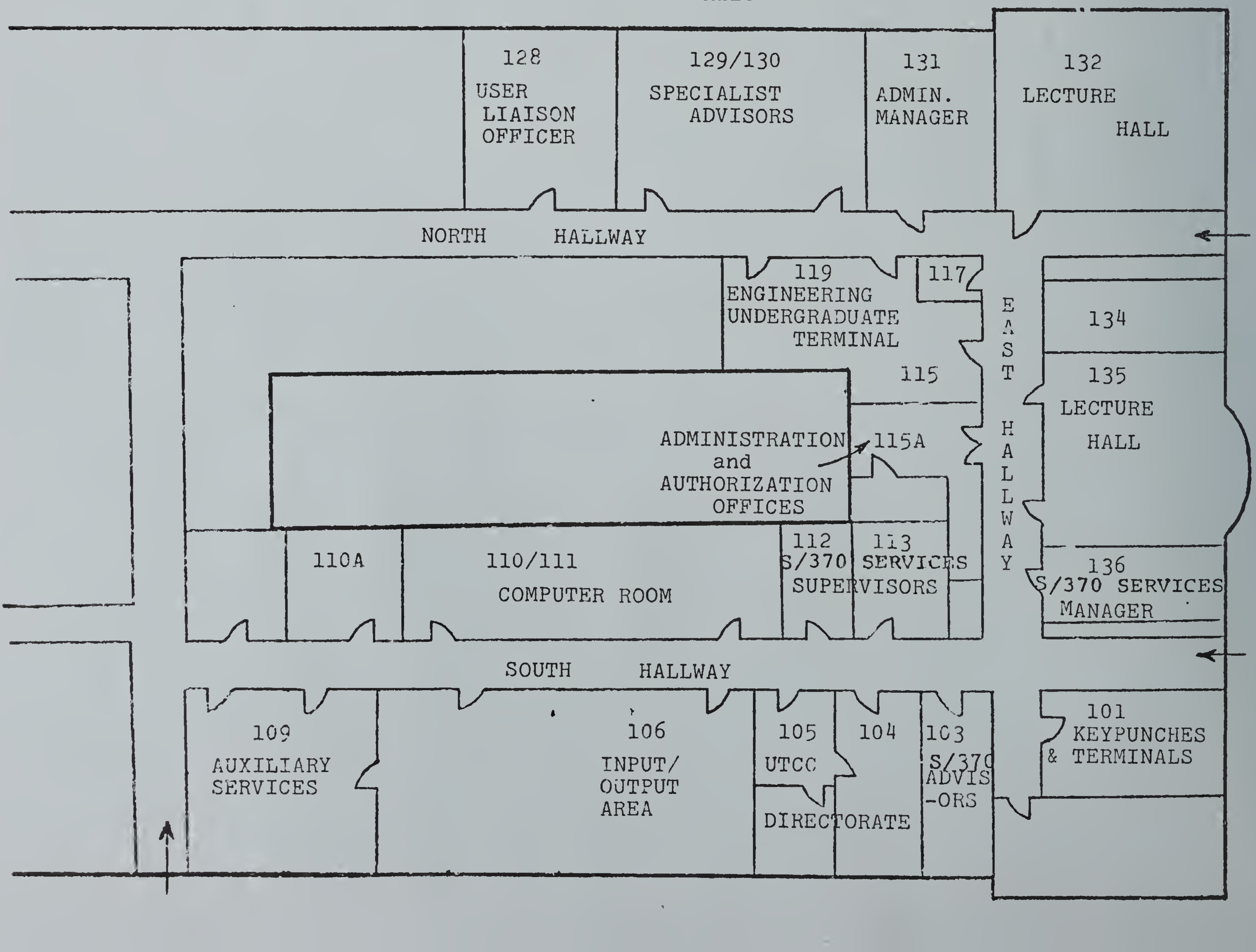




FLOOR PLAN: 12th FLOOR BURTON TOWER

FLOOR PLAN: UNIVERSITY OF TORONTO COMPUTER CENTRE
SANDFORD FLEMING LABORATORIES



A PROGRAM FOR THESIS PREPARATION BY COMPUTER

C. A. Ford

There are many ways to tackle most problems. UTCC offers a variety of computer services in recognition of this truism. Dr. G. Hallman has sent us a little paper describing a program for preparing thesis or research publications. He claims it to be a big help at less cost than the interactive ATS system. It presumes the keypunching of text information including upper/lower case control, for listing on an IBM System/360 or System/370 provided with a TN print chain.

Copies of this program are available from the author. Written for the Fortran G compiler and IBM System 360-65, it has been used with WAT4 and WAT5 compilers and the IBM System/370-165 computer. Anyone desiring a copy should send his address, cost of return postage for a 500-card deck, and $3.00 to cover card duplication and printing of user's guide to the address given below:

Dr. G. Hallman,
80 St. George Street,
University of Toronto,
Toronto, Ontario.

SHARE XXXIX

C. A. Ford

We hear from our SHARE Local Arrangements Committee that plans for the conference here in Toronto the week of August 7th through 11th are proceeding well. A comprehensive agenda has been formed and published. A limited number of Preliminary Agendas are available for study by interested users in Rooms 105, 128 and 136 of Sandford Fleming Laboratories.

The staff in attendance at the Computer Centre, especially Wednesday through Friday, will be skeletal, due to our strong participation in the many ongoing SHARE projects. Our involvement in SHARE will help us assist our users even more in the future. Please be patient with us during this period.

USERBOOK: Replaces Users' Reference Manual

W. E. Greene

The UTCC staff is working feverishly to complete a reorganization of all UTCC documentation which they hope to have available by September.

The purposes behind the reorganization are:

1) To merge all of the various manuals into a basic organization to insure ease and speed of updating and to minimize printing costs.

2) To modularize the publications in such a way that a user need obtain only the documentation that he requires to do his job.

SUGGESTION BOX: The Users Speak

P. LoBello

Suggestion: Have the JCL Monitor look at the job and automatically assign every job to the correct class. Then users would not use or misuse the class parameter.

Reply: We are in the process of writing a pre-set up program, part of which will assign the correct class to jobs. This program will also eliminate the use of a job form or spec.

Suggestion: JCL errors should be detected before a job is put into the execution queue. (I mean type that is discovered before the job ever had a chance to start). Other centres detect these immediately.

Reply: Job card errors are detected immediately by HASP on job submission. Other JCL errors are detected only when a job is put into the execution queue because only then is the JCL expanded by the OS reader procedure. HASP only feeds jobs to OS at the rate OS can execute them, allowing us to realize all the benefits of SPOOLING. Other centres do not run under HASP and the OS reader expands the JCL before entering the job into the output queue.

Suggestion: The SYS 3. PROCLIB update program centers its printed listing which is both unnecessary and unpleasant for CRJE users who have to watch the 25 or 50 characters per second.

Reply: Obviously we overlooked the inconvenience to CRJE users caused by centering SYS 3. PROCLIB output. We will look into the possibility of correcting this and keep your suggestion in mind when developing new utilities.

Suggestion: Put high priority on core allocation for the internal readers since they use little time. CRJE jobs often have to wait some time before entering the HASP job queue.

Reply: The problem is not particularly core contention but device and data set allocation. There are not enough resources to satisfy another job. Until these are available the new job has to wait. Other jobs must wait until the waiting job is satisfied because of the OS scheduling policy. We are aware of this problem as is IBM, who have indicated Release 21.0 will resolve it.

PERSONNEL CHANGES

J. Schick

The new secretary in Interactive Systems is Susan Sim who worked for the University's Physical Plant Department before joining us. This group will also be welcoming Yvonne Davis as the new Accounting Assistant on August 1st.

Nancy Pocock, who has worked part-time for the Administrative section, was appointed as full-time Accounting Assistant in July assisting Erika Schmutz.

Eileen Friedman has left the Development Group to travel to Morocco. She will be missed by all at 49 St. George.

ASIS ANNUAL MEETING

Press Release

The Annual Meeting of the American Society for Information Science will be held in Washington, D.C., from October 23-26,1972. The theme of the meeting: "A World of Information".

To promote this meeting of the Society, 48 liaison representatives have been appointed with Frank T. Dolan, University of Western Ontario, London, representing Canada.

Further information on the conference, including registration and housing forms, may be obtained from:

American Society for Information Science,
1140 Connecticut Ave. N. W., Suite 804,
Washington, D. C. 20036.

DEPARTMENT OF COMPUTER SCIENCE NEWS

C. Phillips

APL for High School Students

In conjunction with the Summer Seminars for High School Students sponsored by the Mathematics Department, Professor John Mylopoulos of the Computer Science Department presented a four day workshop to seventeen students using APL on the interactive system. Although some of the students had previous computing experience, none of them had had an opportunity to use an interactive system or explore a language such as APL.

Many thanks to Professor Mylopoulos for his time, energy, and enthusiasm. The students certainly enjoyed the workshop as evidenced by the heavy demand for use of terminals during the week!

Lectures in Far-away Places

Professor T.E. Hull spent three weeks in England and Sweden during the month of May. He visited and gave lectures at the University of Newcastle-upon-Tyne, the National Physical Laboratory, and Oxford University Computing Laboratory in England. He saw several plays while in London and recommends "How the Other Half Loves" and "The Man Most Likely To".

Professor Hull also presented a series of lectures at the Royal Institute of Technology in Stockholm and the Chalmers Institute of Technology, Goteborg. At the end of his travels, he attended a meeting of the Consultative Planning Committee for the 1974 (Vancouver) International Congress of Mathematicians, held in Lund, Sweden.

On the other side of the globe, Professor C.C. Gotlieb delivered the keynote address "Computer Weights in the Balance of Power" to the 5th Australian Computer Conference in Brisbane on May 22-26,1972. During his trip, Professor Gotlieb also addressed the New Zealand Computer Society and the Canberra Branch of the Australian Computer Society and appeared on the nationally televised program "Monday Conference".

Back in Toronto , Professor Gotlieb attended the Tenth Annual Conference of the ACM Special Interest Group on Computer Personnel Research at OISE, June 15 and 16, 1972.

Professors K.C.Sevcik and D. Tsichritzis attended a Workshop on Privacy and Protection in Operating Systems held at Princeton, New Jersey, June 13-14, 1972. Professor Sevcik delivered a talk on "Security and Protection in the Project SUE Operating System" and Professor Tsichritzis discussed "Twelve Questions about Protection".

Computer Science Specialist Program

This June marks the completion of the Department's first year as an undergraduate Department. Eleven B.Sc. graduates were eligible to have the designation "Completed Specialist Programme in Computer Science" on their records. They are:

B.R.Allen
D.M.Bennett
Miss J.B. Berry
D. Brand
M. L. Brodie
L.W.H. Chan
L. R. Gotlieb
D.B. Knowles
P. Sermer
Miss M. Stead
Miss E.Tozman

Visitors from Peking

As mentioned in last month's Newsletter, a delegation from the Institute of Computer Technology , Academy of Science, Peking visited the University during the week of June 19, 1972. The three delegates, Mr. Hsu, Mr. Chang, and Mr. Huang were accompanied by a correspondent from the New China News Agency, Mr. Wang.

The visit to Air Canada's Reservac II System and the afternoon spent at IBM seeing the 125 keypunches being manufactured and the Research Lab were interesting and informative.

At the University, the delegation was given a tour and demonstration of the CRF facilities by Mr. Jim McBride. Professor K.C. Smith guided the group through the Electrical Engineering Lab. Bob Cavanagh, Derry Cox and Al Jones were the guides through the S/370-165 complex. They fielded the many questions with ease. Dr. John Wilson, Director of the Computer Centre accompanied the Chinese delegation during its visit to the UTCC.

Mr. Don McDougal of Datagen invited the delegation to a presentation session of their new disk. A visit to Ruscom Electronics for a look at the Nova minicomputer in various modes of action and uses completed the day.

The University of Waterloo hosted the group on Friday, June 23.

The highlight of the week was the evening the Chinese delegation invited the U of T personnel to a Chinese dinner at China House. By request the northern cook prepared his specialities and a veritable banquet was the result.

THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Recent Acquisitions in DCS Library

Ashby, Gordon P. and Heilman, R. L.
Introduction to I/O Concepts and Job Control Language for the IBM Operating System 360.
Encine, Cal., Dickenson Pub. Co., 1971.

Barrodale, Ian, Roberts, F.D.K. and Ehle, B.L.
Elementary Computer Applications in Science, Engineering and Business.
New York, Wiley, 1971.

Berman, Gerald, and Fryer, K.D.
Introduction to combinatorics.
University of Waterloo, March 1970.

Calgary International Conference on Combinatorial Structures and Their Applications, University of Calgary, 1969.
Combinatorial Structrues and Their Applications.
New York, Gordon and Breach, 1970.

Conference on Computing in the City, London, May 1970.
Computing in the City. 2 v.
Organized by the British Computer Society and the Financial Times.

Dearden, J., Mcfarlan, F.W. and Zani, W.M.
Managing Computer-Based Information Systems.
Homewood, Ill., Irwin, 1971.

deBerranti, Basil Z., ed.
Living with the Computer.
London, Oxford University Press, 1971.

Haggerty, Gerald B.
Elementary Numerical Analysis with Programming.
Boston, Allyn and Bacon, 1972.

International Federation for Information Processing.
IFIP Guide to Concepts and Terms in Data Processing.
Ed. by I.H. Gould.
Amsterdam, North-Holland, 1971.

Kanter, Jerome.
The Computer and the Executive.
Englewood Cliffs, N.J., Prentice-Hall, 1967.

Martin, J.T.
Future Developments in Telecommunications.
Englewood Cliffs, N.J., Prentice-Hall, 1971.

Naylor, T.H.
Computer Simulation Experiments with Models of Economic Systems.
New York, Wiley, 1971.

Neuhold, E.J. and Lawson, H.W., Jr.
The PL/1 Machine: An Introduction to Programming.
Reading, Mass., Addison-Wesley, 1971.

Nikolaieff, G.A., ed.
Computers and Society.
New York, H.W. Wilson, 1970.

Price, Wilson, T. and Miller M. 2d ed.
Elements of Data Processing Mathematics.
San Francisco, Rinehart Press, 1970.

Sackman, Harold.
Mass Information Utilities and Social Excellence.
Princeton, N.J., Auerbach, 1971.

Shelly, G.B. and Cashman, T.J.
OS Job Control Language.
Fullerton, Cal., Anaheim Pub. Co., 1972.

Stoutmeyer, David R.
PL/1 Programming for Engineering and Science.
Englewood Cliffs, N.J., Prentice-Hall, 1971.

Stroud, A.H.
Approximate Calculation of Multiple Integrals.
Englewood Cliffs, N.J., Prentice-Hall, 1971.

Symposium on Computer Audit Packages, London, 1970.
Computer Audit Packages: Information Retrieval and Specialized Audit Features.
London, British Computer Society.

Walker, Terry M.
Introduction to Computer Science: Pl/1 Language Programming.
Boston, Allyn and Bacon, 1972.

TAPE, DISK AND PRINTER SETUP CHARGES

C. A. Ford

A system change is being prepared which will facilitate charging for use of tape, disk and printer setup services on a unit basis. At present the users who run Class B jobs are charged a flat $4.00 premium to cover peripheral device expenses. A new system and a revised price list are being studied at the present time by the Computer Users Committee.

As presently planned, jobs of any class which call for the setup of tape drives will be charged $1.00 per tape mounted. Jobs calling for special printer forms will be charged $2.00. The rate for disk mounts will be $3.00 each. These charges will apply to Classes A and C as well as to Class B. Class A permits jobs to call for printer forms set up only. Class B permits users to call for any of the set up functions as well as oversize core regions and other special attention.

The potential income from this new scheme has been studied in context of the number of setups required in all classes during a recent month of operation. The new rates would produce almost an identical revenue to the Centre as did the $4.00 flat rate. Thus the new pricing scheme for setup does not constitute a hidden overall price increase. This study showed that Class B users will pay substantially less while Class A and C users will for the first time begin to pay some fair share of the overall device costs. The statistics also indicate that very few users in Class B will be subjected to higher costs, because of the number of setups their job may require.

It is expected that a new end of job accounting sheet will be produced by the system in advance of initiating this new charging scheme. This will allow time for users to prepare modifications to their data management so as to minimize the costs to themselves. Further announcements will be made directly from System/370 User Services. If you have questions or need help, please call 928-7331.

The Computer Centre feels that this is a more fair and rational method of charging off our peripheral device costs. We hope that the Computer Users Committee will give us a favorable report on this scheme, thus enabling its implementation in the near future. Comments on this scheme may be directed to members of the Computer Users Committee or to the management of the Computer Centre itself.

SYSTEM/370 APPLICATION SOFTWARE SUPPORT

W. Hayes

New Acquisitions

We are pleased to announce that the following acquisitions have been made for the purpose of increasing and improving the capabilities of the application software libraries. Availability will be announced in later publications and newsletters.

(1) DIFSUB - an algorithm for solving stiff systems of differential equations which is a significant improvement on those currently available in the Numerical Methods Library. This algorithm was recommended to us by Professor T.E. Hull of the Department of Computer Science. Communications of the ACM, March 1971, published the algorithm itself and a related discussion of the method.

(2) IMSL - a library of subroutines in mathematics and statistics containing algorithms which purport to be the state-of-the-art in many areas. It is our intention to implement only those routines which actually represent an improvement over the facilities now available in our Numerical Methods and Statistical Methods Libraries. Persons interested in examining the documentation materials for the purpose of making recommendations concerning this software may drop into Room 103 to review the copy on display.

Former IC.ICSLIB Users

As reported in previously issued SSB's, all mathematical and statistical algorithms which resided in IC.ICSLIB have been included in one or more of the new application software libraries. We have done this in the interests of continuity for those users who, from time to time, have made use of these routines. Abstracts of these routines are in the Users's Reference Manual. Many of them are simply modified versions of routines in the Scientific Subroutine Package; most are substandard in performance and will be replaced by improved algorithms when they become available. Hardcopy documentation for these routines is available in Room 103 for examination. It is not our intention to provide additional documentation [illegible] t materials.

Those items of IC.ICSLIB which were of a non-statistical, non-mathematical nature were included in IC.UTILLIB. Documentation for this is also available in Room 103 for examination.

Enquiries regarding the contents of any of these libraries should be directed to the advisor in Room 103.

SYSTEM/370 CREDIT REQUESTS

C. A. Ford

Credit request activity dropped in June to only twenty-seven items from fifty-five in May. The June figure is only 0.05% of general purpose jobs run, a creditably low level indeed.

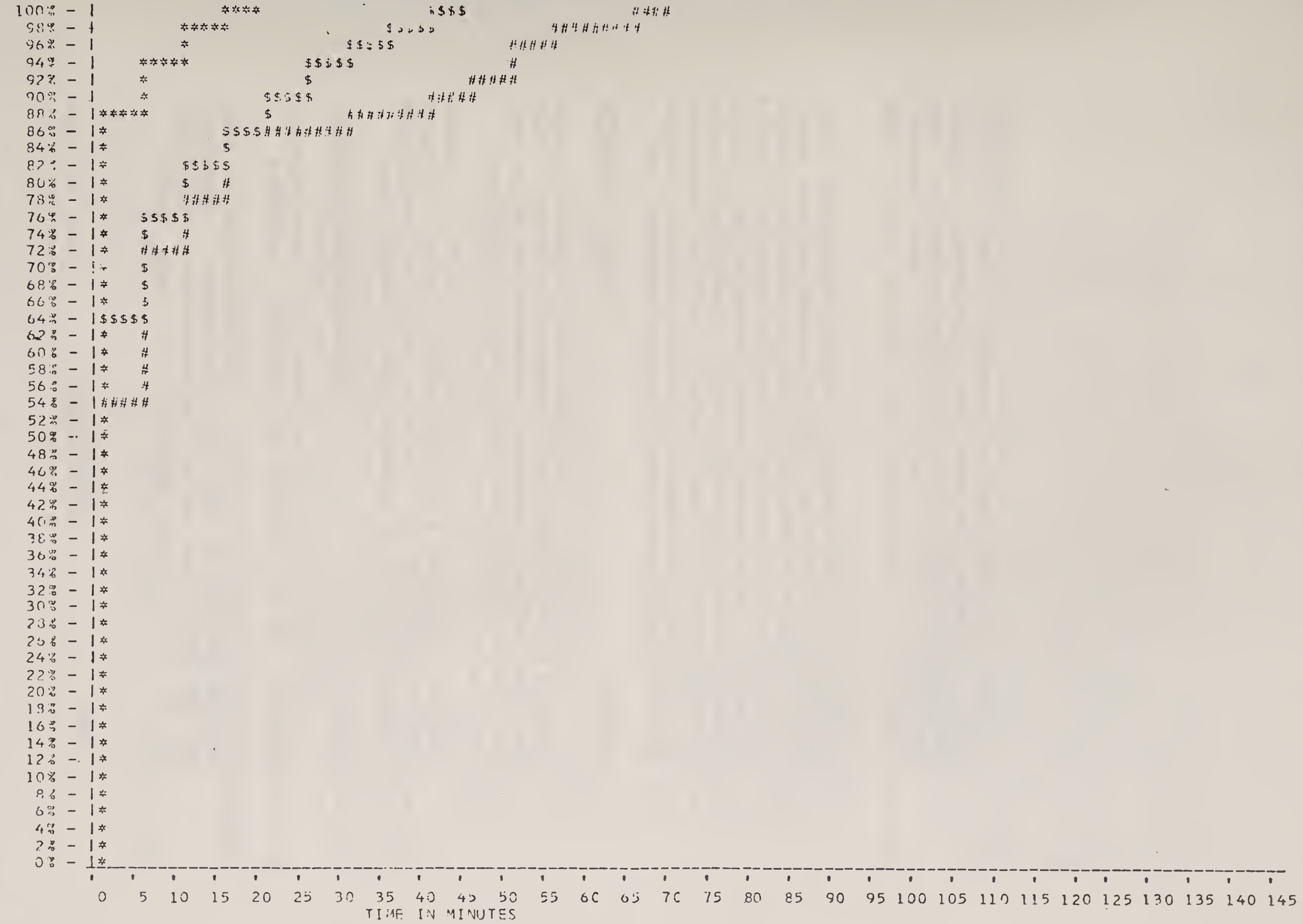
Over half of the claims were software-related, with human errors not far behind. Hardware troubled only two jobs. All of the problems uncovered were reported as fully understood and are being corrected.

SYSTEM/370 TURNAROUND

R. Mikkor

A new version of HASP, which saves job accounting information on-line has made it possible for us to study job turnaround for the different classes of jobs and priority within these classes. Job turnaround was simply calculated by taking the difference between time on reader and time off printer. Below is an example of the turnaround for a typical day for the different classes and priorities. These graphs vary from day-to-day and we are currently working on weekly and monthly summaries to indicate long term trends.

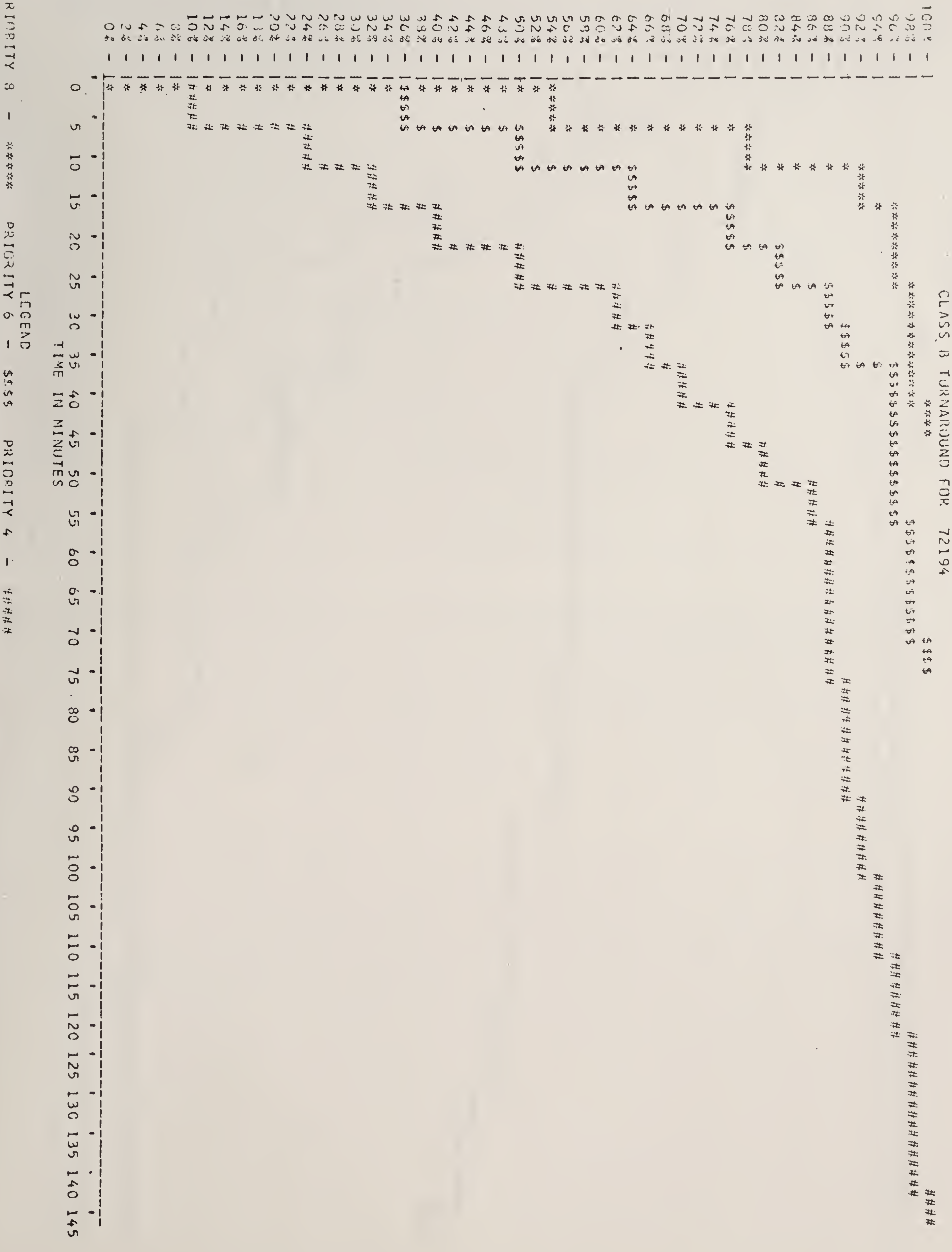
Other related projects have been initiated. For example, turnaround curves by time-of-day will show the turnaround given to jobs on the basis of what time-of-day they were submitted. These curves should help users select the time-of-day for best turnaround for the type of jobs they are submitting.

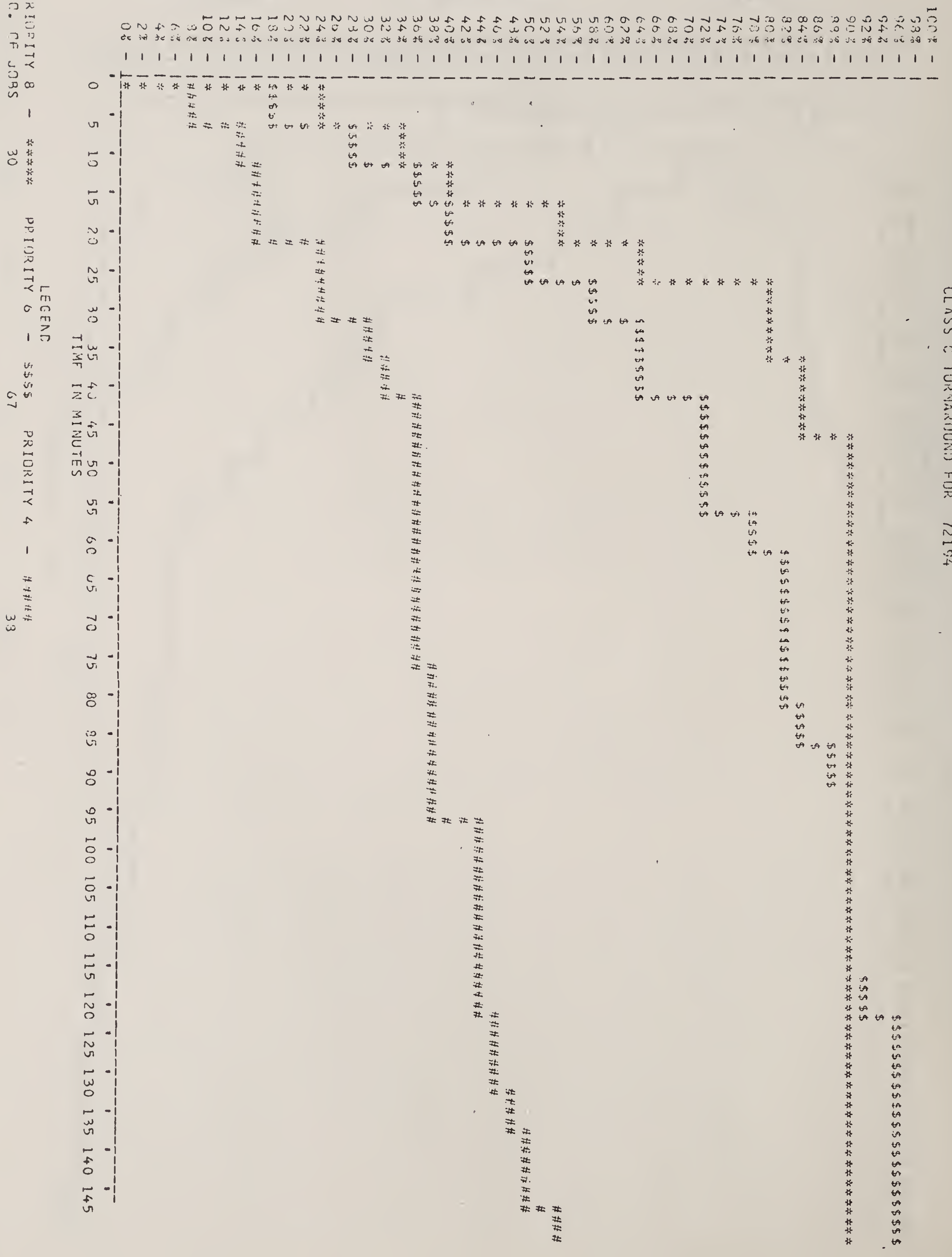


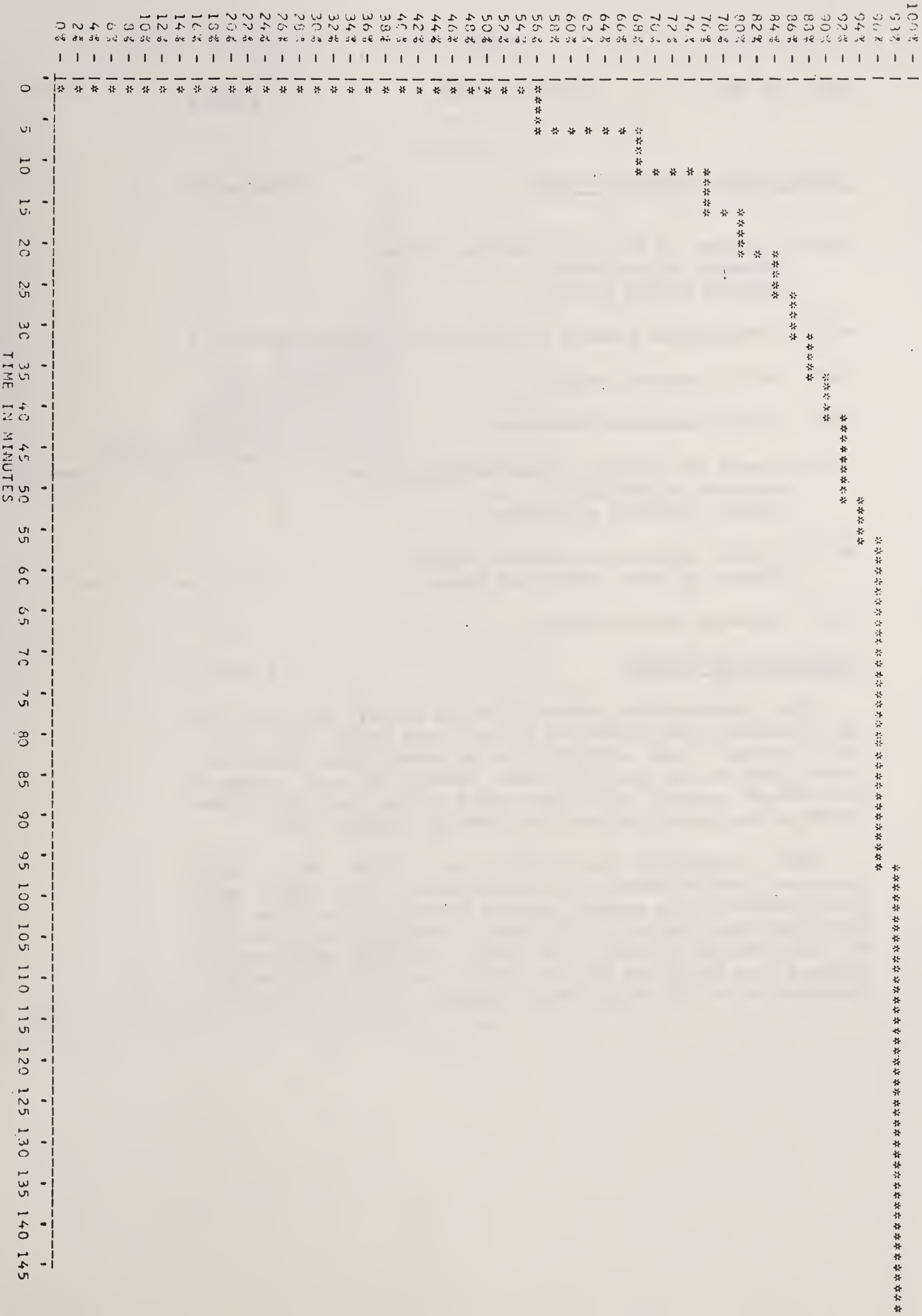
CLASS A TURNAROUND FOR 72194

LEGEND

```
PRIORITY 8  -  *****     PRIORITY 6  -  $$$$     PRIORITY 4  -  ####
NO. OF JOBS    202                       326                     294
```


CLASS B TURNAROUND FOR 72194
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145
TIME IN MINUTES
LEGEND
PRIORITY 8 - *****
PRIORITY 6 - $$$$
PRIORITY 4 - ####
NO. OF JOBS
46
43
48


CLASS C TURNAROUND FOR 72194
100%
98%
96%
94%
92%
90%
88%
86%
84%
82%
80%
78%
76%
74%
72%
70%
68%
66%
64%
62%
60%
58%
56%
54%
52%
50%
48%
46%
44%
42%
40%
38%
36%
34%
32%
30%
28%
26%
24%
22%
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145
TIME IN MINUTES
LEGEND
PRIORITY 8 - *****
PRIORITY 6 - $$$$
PRIORITY 4 - #####
NO. OF JOBS 30 67 33


TURNAROUND FOR ALL CLASSES FOR DAY 72146
0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20% 22% 24% 26% 28% 30% 32% 34% 36% 38% 40% 42% 44% 46% 48% 50% 52% 54% 56% 58% 60% 62% 64% 66% 68% 70% 72% 74% 76% 78% 80% 82% 84% 86% 88% 90% 92% 94% 96% 98% 100%
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145
TIME IN MINUTES

SYSTEM STATUS BULLETINS ISSUED

J. Campbell

33:72:1-Changes to PL/1 (F) Compiler Options
      2-Changes to the Loader
      3-Errata in SSB 31:72:1

34:72 -Statistical Package for the Social Sciences-Version 4

35:72 -PL/1 Checkout Compiler

36:72 -UTCC Catalogued Procedures

37:72:1-Hours of service - Dominion Day Holiday
      2-Erratum in SSB 35:72
      3-Summer Schedule of Courses

38:72:1-S/370 Application Software Support
      2-Error in Users' Reference Manual

39:72 -Erratum in SSB 38:72

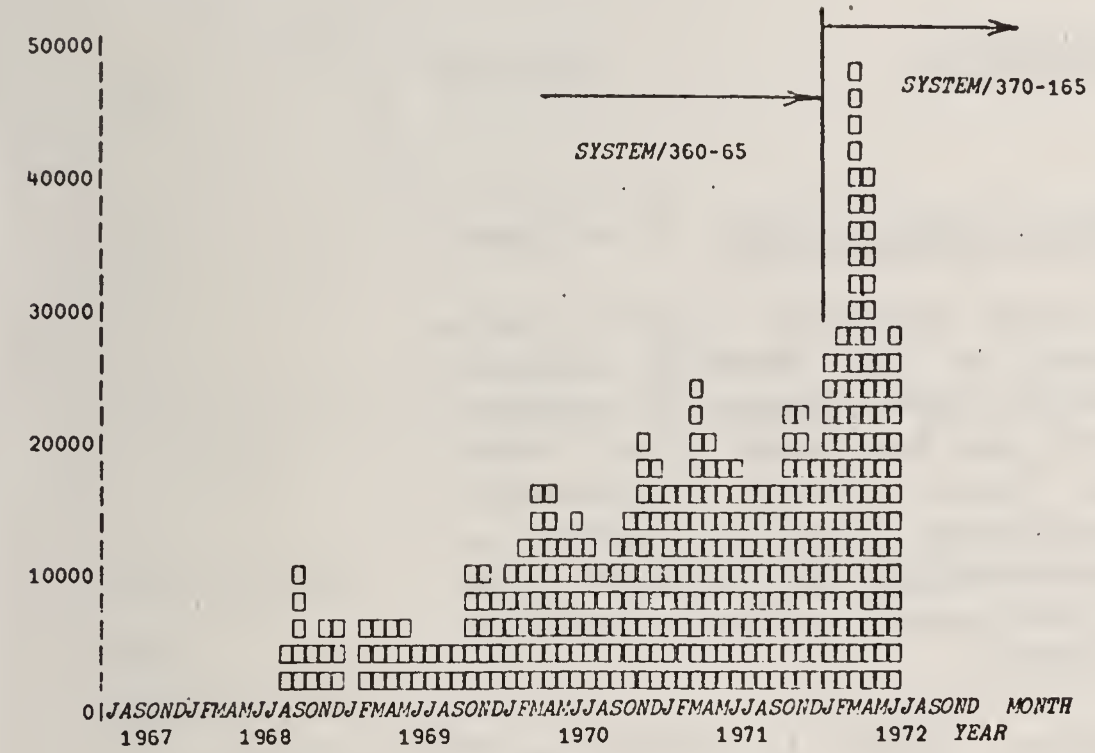
SYSTEM/370 JOB VOLUME

C. A. Ford

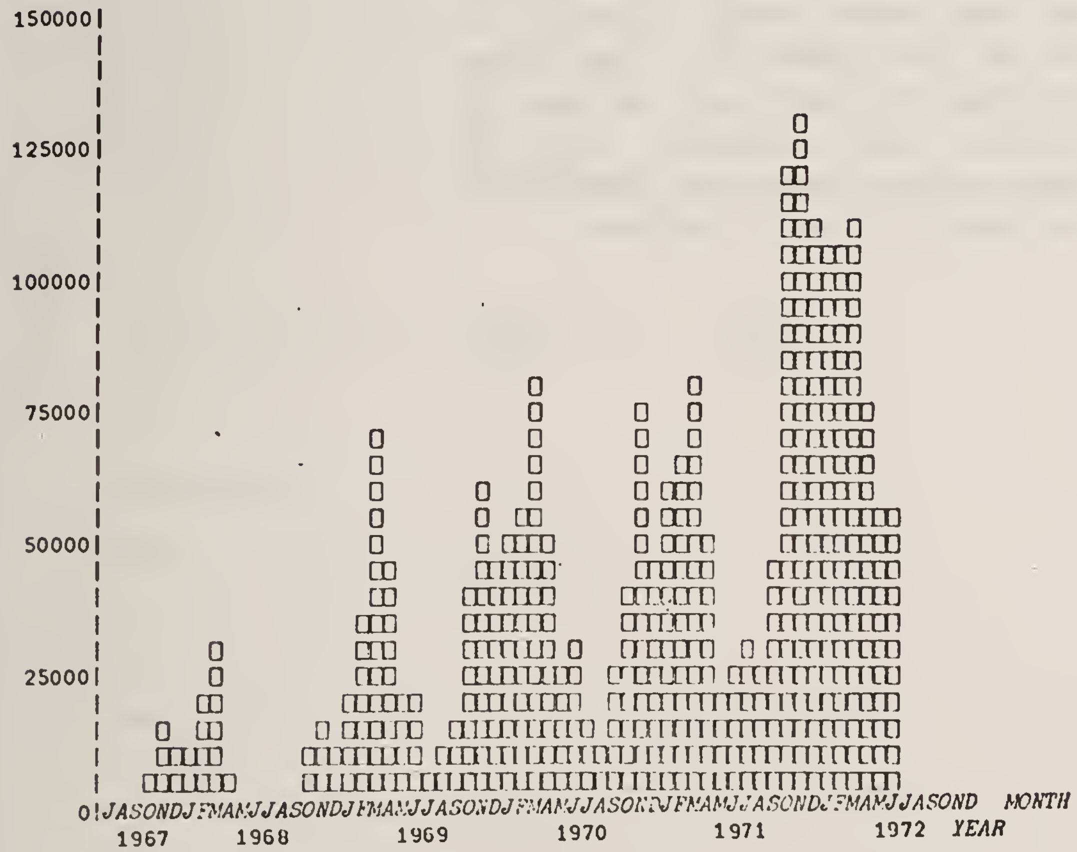
The accompanying charts show the history of System/360 and System/370 job volume for a five year span from July 1967 through June of 1972. The uppermost chart shows the growth pattern for the full-scale general purpose stream. The second covers the high speed stream, including 7094 PUFFT in the period October 1967 through February 1969.

The System/370 has helped to provide the greatly increased service shown in the histograms. For those who like numbers, the general purpose job stream total for the April/May/June quarter of 1972 was 55,698 jobs, an increase of sixty-eight percent over 1971. The high speed stream doubled from 94,221 in 1971 to 188,545 in 1972. The overall increase was a full eighty-eight percent.

S/3X0 JOBS PER MONTH



HIGH SPEED JOBS PER MONTH (PUFFT,WATFOR,WATFIV,ETC.)



SYSTEM/360 AND SYSTEM/370 SERVICE FACTOR HISTORY C. A. Ford

In recent newsletters we have published a set of three graphs illustrating the variation of the Overall Service Factor with time and with Jobs per Hour (volume of service) on the System/370 computer. Jobs per Hour were also shown against time. These data were weekly aggregates. Histograms reproduced on the following page are based on monthly aggregates, with data spanning twelve months from July 1971 through June 1972. This straddles the conversion from System/360-65 to System/370-165.

The Overall Service Factor, (OSF), is defined as the ratio of costs charged for all work, priority factor included, to the value of the work had it all been done at standard priority. In Figure III, Overall Service Factor versus Jobs per Hour, we found a nearly linear relationship for six months of System/360 service. The greater the job volume, the higher the priority the users would select. A similar trend seems to be visible on the monthly data for System/370. Two exceptional points lie well out at the 80 to 100 job-per-hour level, reflecting heavy student use of SNOBOL in March and April. These users were not permitted RUSH priority and the work was of short Class A nature.

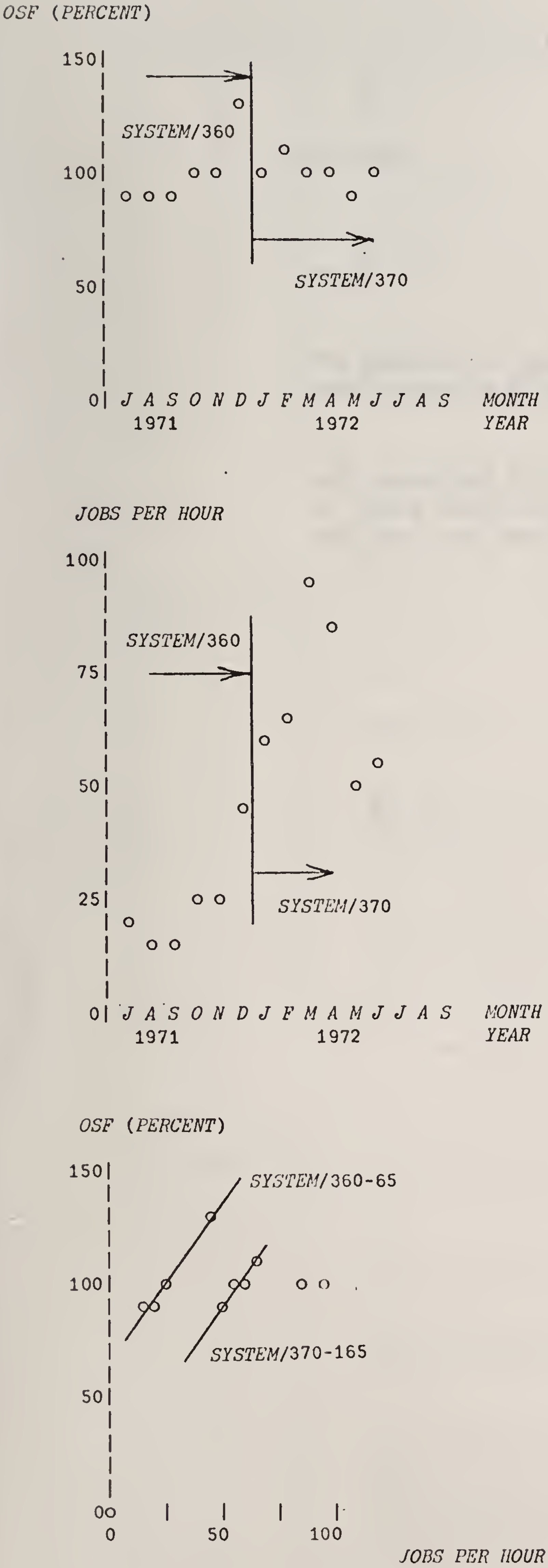

OSF (PERCENT)
150
100
50
0
SYSTEM/360
SYSTEM/370
J A S O N D J F M A M J J A S
1971
1972
MONTH
YEAR
JOBS PER HOUR
100
75
50
25
0
SYSTEM/360
SYSTEM/370
J A S O N D J F M A M J J A S
1971
1972
MONTH
YEAR
OSF (PERCENT)
150
100
50
0
SYSTEM/360-65
SYSTEM/370-165
0
50
100
JOBS PER HOUR

FIGURE III

DOWNTIME REPORTS

J. Lees

Attached are three charts showing the number of minutes of downtime for the System/370, EUT and ASUT per day during the month of June.

New charts will be published soon which will indicate the time of day when the downtime occurred and also will give a visual comparison between total uptime for that day and the time lost.

```
DOWNTIME REPORT FOR SYSTEM370 DURING THE MONTH   6  72

----------------------------------------------------------------------------------------------------------------------------------
|
|
|DAY  RELOADS  DOWNTIME     0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
|========================== +----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
|  1        3        30    |□□□***************************
|  2        0         0    |
|  3        1         5    |□****
|  4        0         0    |
|  5        1         7    |□******
|  6        0         0    |
|  7        0         0    |
|  8        2        15    |□□*************
|  9        4        32    |□□□□****************************
| 10        1        15    |□**************
| 11        0         0    |
| 12        0         0    |
| 13        1        10    |□*********
| 14        2        32    |□□******************************
| 15        2        35    |□□*********************************
| 16        1        10    |□*********
| 17        0        10    |**********
| 18        0         0    |
| 19        0         0    |
| 20        1        25    |□************************
| 21        2        20    |□□******************
| 22        0         0    |
| 23        1        10    |□*********
| 24        5        95    |□□□□□******************************************************************************************
| 25        0       240    |****************************************************************************************************(240)
| 26        2        16    |□□**************
| 27        2        50    |□□************************************************
| 28        0        55    |*******************************************************
| 29        0         0    |
| 30        0         0    |
----------------------------------------------------------------------------------------------------------------------------------
```

```
DOWNTIME REPORT FOR EUT DURING THE MONTH   6  72

----------------------------------------------------------------------------------------------------------------------------------
|
|
|DAY  RELOADS  DOWNTIME     0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
|========================== +----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
|  1        0         0    |
|  2        0         0    |
|  3        1         5    |□****
|  4        0         0    |
|  5        1         7    |□******
|  6        0         0    |
|  7        0         0    |
|  8        2        15    |□□*************
|  9        4        32    |□□□□****************************
| 10        1        15    |□**************
| 11        0         0    |
| 12        0         0    |
| 13        1        10    |□*********
| 14        2        30    |□□****************************
| 15        2        35    |□□*********************************
| 16        1        10    |□*********
| 17        1       255    |□***************************************************************************************************(255)
| 18        0       290    |**** ***********************************************************************************************(290)
| 19        0        15    |***************
| 20        1        15    |□**************
| 21        2        20    |□□******************
| 22        0         0    |
| 23        1        10    |□*********
| 24        5       245    |□□□□□***********************************************************************************************(245)
| 25        0       240    |****************************************************************************************************(240)
| 26        2        16    |□□**************
| 27        1        22    |□*********************
| 28        0        55    |*******************************************************
| 29        0         0    |
| 30        0         0    |
----------------------------------------------------------------------------------------------------------------------------------
```

```
DOWNTIME REPORT FOR ASUT DURING THE MONTH   6  72

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|
|
|DAY  RELOADS  DOWNTIME     0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100
|========================== +----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
|  1        3        30    |□□□***************************
|  2        0         0    |
|  3        1         5    |□****
|  4        0         0    |
|  5        1         7    |□******
|  6        0         5    |*****
|  7        0         0    |
|  8        2        44    |□□******************************************
|  9        4        32    |□□□□****************************
| 10        1        15    |□**************
| 11        0         0    |
| 12        0         0    |
| 13        1        45    |□********************************************
| 14        2        30    |□□****************************
| 15        2        35    |□□*********************************
| 16        1        10    |□*********
| 17        0         1    |*
| 18        0         0    |
| 19        0         0    |
| 20        1        25    |□************************
| 21        2        40    |□□**************************************
| 22        0         0    |
| 23        1        10    |□*********
| 24        5        95    |□□□□□******************************************************************************************
| 25        0       240    |****************************************************************************************************(240)
| 26        2        16    |□□**************
| 27        1        42    |□*****************************************
| 28        0        55    |*******************************************************
| 29        0         0    |
| 30        0         0    |
----------------------------------------------------------------------------------------------------------------------------------
```

```
DOWNTIME ( IN MINUTES ) IS SHOWN AS ASTERISKS E.G. **********

RELOADS REFERS TO THE NUMBER OF MONITOR RESTARTS FOR THE DAY
AND ARE SHOWN AS RECTANGLES E.G. □□□□□
```

System Reliability

S. Goldfarb

The following tables summarize the time lost out of scheduled hours of production for the period June 1 through June 30, 1972. The total number of scheduled hours of operation during this period was 493. Table 1 shows the time lost due to late starts (IPL's); Table 2 shows the time lost due to system failures for each of the systems. Four unscheduled IPL's were required as a result of the failures. The data communication lines were transferred from the IBM 2703 Control Unit to a Memorex 1270 Control Unit. In spite of attempts to minimize the effects of the hardware changeover by transferring groups of lines gradually, much of the time lost was caused by the control unit change. The uptime for each of APL, ATS, and CPS was 99.63%, 99.43%, and 99.45%, respectively. (In addition to the scheduled hours of operation, APL, ATS, and CPS were each available during approximately 72 hours of unscheduled weekend time.)

DATE	TIME LOST (mins.)			REASON
	APL	ATS	CPS	
Thurs. June 1	33	34	35	Memorex 1270 changes
Fri. June 2	2	3	4	" " "
Tues. June 13	11	12	13	" " "
Mon. June 19	10	26	28	" " "
Sun. June 25	2	3	5	" " "
TOTALS	58	78	85	

Table 1. Time Lost at IPL

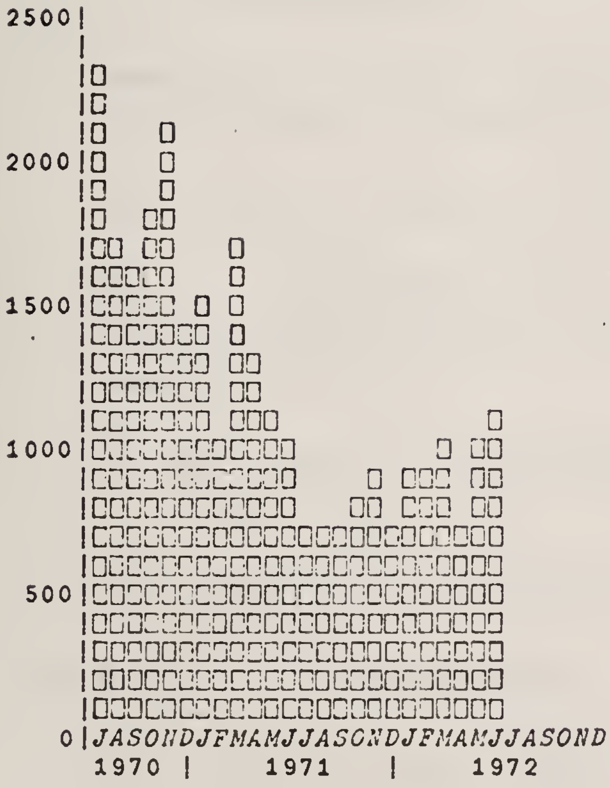
DATE	DOWN TIME (mins.)			REASON
	APL	ATS	CPS	
Fri. June 2	6	7	8	*CPU failure (hardware)
Mon. June 5		42	12	ATS Error (software)
Mon. June 19	7	5	18	Mem. 1270 Error (hardware)
Sun. June 25	15	15	12	*Mem. 1270 Error (hardware)
Mon. June 26	7	9	10	*Mem. 1270 Error (hardware)
Wed. June 28	4	5	6	*Power fluctuation
Thurs. June 29	11	8	13	Mem. 1270 Error (hardware)
TOTAL	50	91	79	*indicates IPL required

Table 2. System Failures

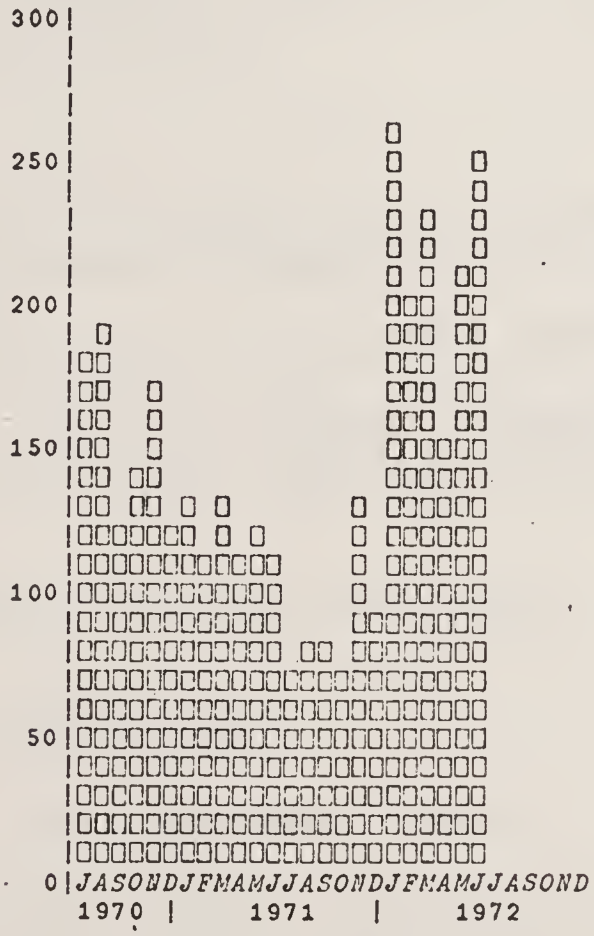
7094 PRODUCTIVITY STEADY

J. Walton

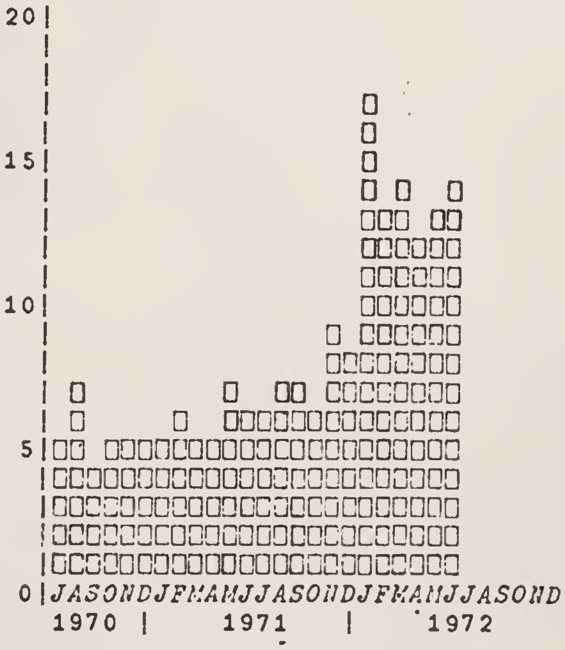
As shown in these charts of the past two years operation of the 7094, the first six months of the Consortium arrangement have boosted 7094 productivity to viable levels. Average job length has also risen, which improves efficiency considerably in the strictly sequential batch environment of the 7094.



7094 JOBS PER MONTH



7094 HOURS PER MONTH



7094 MINUTES PER JOB

GENERAL NEWS

J. R. McBride

a) New Disk Pack Configurations

With the addition of the three addressable drives in the new 2314 System, CRF has now changed the pack configurations for MFT and PCP.

A procedure describing these changes has been posted on the notice board outside the CRF lab.

The major change in this area is that the MFT II operating system is now split between two packs, CRF006 and CRF002. This should improve the performance of the system.

b) New IPL Procedure

In order to ensure that the correct date is entered at IPL time, a modification has been made to the Masger Scheduler Initialization program. This results in the following change to the IPL procedure:

New Procedure:

Immediately after the SET DATE command has been issued, (e.g. 72.168), a WTOR will appear showing:

```
*00 CRF024W TODAY IS FRIDAY JUN 16 1972, REPLY YES/NO
```

If the expanded date in the above message is correct, then you should rely: R 00, 'YES', and the IPL will continue normally.

If the date is not correct, then you should reply:
R 00, 'NO'

This results in the following message:

```
*00 CRF025W SET DATE=CORRECT DATE, THEN REPLY 'RETRY'
```

You should then issue a new SET DATE command or a SET DATE and TIME, and then R 00, 'RETRY'. The first WTOR will then reappear with the expanded date and you can again reply YES or NO.

For further details contact Dennis Smith, local 7133.

c) Cataloging of Rented Data Sets

As of July 1st, 1972 all data sets on rented disk space will automatically be catalogued. There will be no charge for these catalog entries.

d) Filming in the CRF Lab

A film crew from ETV, channel 19 interviewed Prof. Leslie Mezei of CSRG in the CRF lab. on Tuesday 27th. June 1972. The subject of the is "Artists and the Computer" and a demonstration of Prof. Mez age was filmed.

Tom Britton, who also appears in the film, informs me that it will probably be shown on channel 19 in September or October. Once we discover the exact date, it will be published in the CRF Information Bulletin and in the UTCC Newsletter.

New Automatic Rentals Procedure:

To date, the procedure for renting a tape, disk space or a catalogue entry at CRF involved filling out a form, handing it to the librarian and then waiting while a suitable tape, disk etc., could be allocated. The user then had to allocate and/or catalog his own data set.

In order to simplify this for the user and for CRF personnel, and to prevent possible errors, CRF is implementing a system which will completely automate the rental and allocation of tapes, disk space and catalog entries.

The user will simply specify his requirements on an EXEC card, and the system will automatically assign a free tape or disk, will automatically allocate and/or catalog a data set, and (of course) will automatically bill him. The Account Holder will receive a monthly itemized listing of all of the elements for which he is paying.

Included in this new system is a maintenance program which will keep the rental disk packs clear of unauthorized data sets and will note any disk data set which has changed its size. This program will be run at specified times during the week.

This system is nearing completion and will be introduced, in parts, as each section is fully debugged. The first section was implemented at 9:00 a.m. on Tuesday 20th, June 1972. This section performs the automatic allocation of HOLD tapes and is working satisfactorily.

Under the old procedure two tapes were designated as HOLD tapes and a user could hold data on them for 24 hours, free of charge. However, occasional problems arose when a user specified a HOLD tape by volume serial number and it had already been allocated to someone else.

Under the new system the user will specify his own volume serial number and the system will automatically assign a free tape. The number of HOLD tapes has been increased to 10, but if all of these are already allocated when a user requests one, the system will inform the operator and another free (non-HOLD) tape can be assigned.

At the end of a 24 hour period (actually on the second morning after allocation) the tape will be automatically freed for use by other users.

For full details of this system see "CRF HOLD TAPE PROCEDURES," form # CRF410, which is available from the CRF office.

The second section of the system is scheduled for implementation before the end of July. This section will automatically assign rental tapes, disks, disk space and catalog entries to users.

VIsitors to the Lab

The following people visited the lab. between June 16th and July 13th, 1972.

Mr. J.D. Dure (Leigh Inst.), Mr. G. York (Leigh Inst.), Prof. T.A. Marsland (Univ. of Alberta), Prof. Chang Hsui, Prof. Huang Te-Chin, Prof. Hsu Kung-Shch (all of the Institute of Computer Technology, Academy of Science, Peking, China), Mr. C.Y. Wang (correspondent of the New China News Agency, Ottawa), Mr Norman Coxal (Dept. of Industry and Tourism, Govt. of Ontario), Mr. Bob Wood and Crew (Educational Television, Channel 19), Dr. Thompson (Faculty of Dentistry), Prof. C.M. Strauss (Brown University, Providence, R.I.), Mr. Ken Atkinson (U. of T. Library Automation) and Mrs. Jean Holland (Guelph).

CRF Publications

New:

"HOLD TAPE PROCEDURES," form #CRF 410, June/72
"An Introduction to CRF and its Services," Form "CRF 411 July/72
"CRF Annual Report, 1972/72" July/72
Copies of these publications are available on request. Call Miss Joyce King, local 6326.

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	SF105	6496
ASSISTANT DIRECTOR		
C. Alan Ford	SF105	2991
USER LIAISON OFFICER		
Bill Greene	SF128	2694
ADMINISTRATION MANAGER		
Jerry Palter	SF131	8948
AUTHORIZATION CLERKS		
Nancy Pocock (S/370 + 7094)	SF115A	8702
Susan Sim (Interactive)	49 St. Geo.	8703
S/370 SERVICES		
MANAGER		
Dave McNaughton	SF136	6281
INPUT/OUTPUT SUPERVISOR		
Roy Finlayson	SF112	7092
USER SERVICES SUPERVISOR		
Stan Yagi	SF112	7331
PROGRAM ADVISORS	SF103	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo.	3787
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094
DEVELOPMENT MANAGER		
Alan Wickens	49 St.Geo.	6135

JOB STATUS QUERIES:	
SYSTEM/370	7373
7094	7094
Auxiliary Services	6465
INTERACTIVE TERMINAL SYSTEMS:	
System Status	6234
APL	7200
ATS	7100
CPS	6200
CONVERSATIONAL REMOTE JOB ENTRY (CRJE)	
2741	7233, 7381, 7386
TTY	7445

UTCC COMPUTER EQUIPMENT

(a) SYSTEM/370 MODEL 165

- located in SF 106/110/111
- provides General Purpose Job Stream and High Speed Job Stream services
- 2048K bytes of core
- 16 disk drives
- 1 drum
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 5 printers
- 4 card readers
- 2 card punches
- 6 remote terminals
- 1 paper tape reader

- OS/MVT with HASP and CRJE

(b) SYSTEM/360 MODEL 65

- located in Room 333 McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 8 disk drives
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 85 2741 typewriter terminals

- OS/MVT with APL, ATS, and CPS

(c) 7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

UTCC AUXILIARY EQUIPMENT

- located in SF Room 109
- System/360 Model 20 for unit record services
- CALCOMP plotter (11" and 30")
- card sorter
- decollator
- 519 reproducing punch

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